DDK MCP Connector Polish Eileen Hahn, Fermilab

The DDK MCP ferrule is polished by a diamond flywheel cutter (P3′) floating on air bearings. The diamond tooling is flawless to 500 magnifications when new. Two diamond tools (one termed a "rougher" with a .062" radius and the other termed a "finisher" with a .250" radius) are utilized simultaneously on the first pass. The first pass removes most of the material ~ .010". The second pass, the finishing pass, removes approximately .001" and flattens out the variations made by the "rougher" diamond. The diamonds are air cooled during the process. The speed and feed of the flywheel is programmable. The best and consistent results are achieved at 1500 RPM with .030" travel per second.

A fixture holds 6 DDK connectors for one operation. The connectors are held in place using the same shoulder on the MCP ferrule which holds the clip. The actual machine operation takes about four minutes. The pictures below show the fixture and the fixture installed in the cutter.